

ManuBuild

Open Building Manufacturing



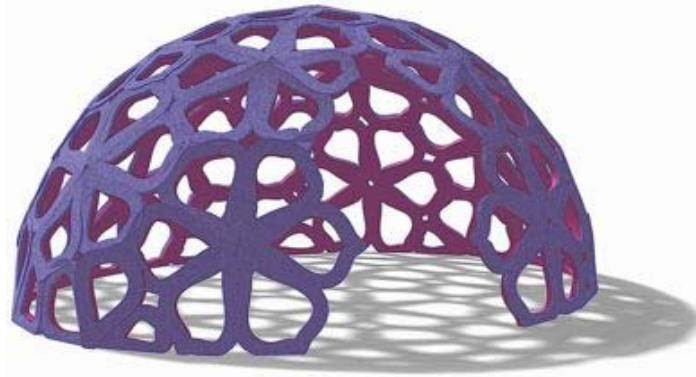
European Integrated Project on
Industrialised Construction

Construct IT
16-17 May 2007

Dr Samir Boudjabeur
Corus RD&T



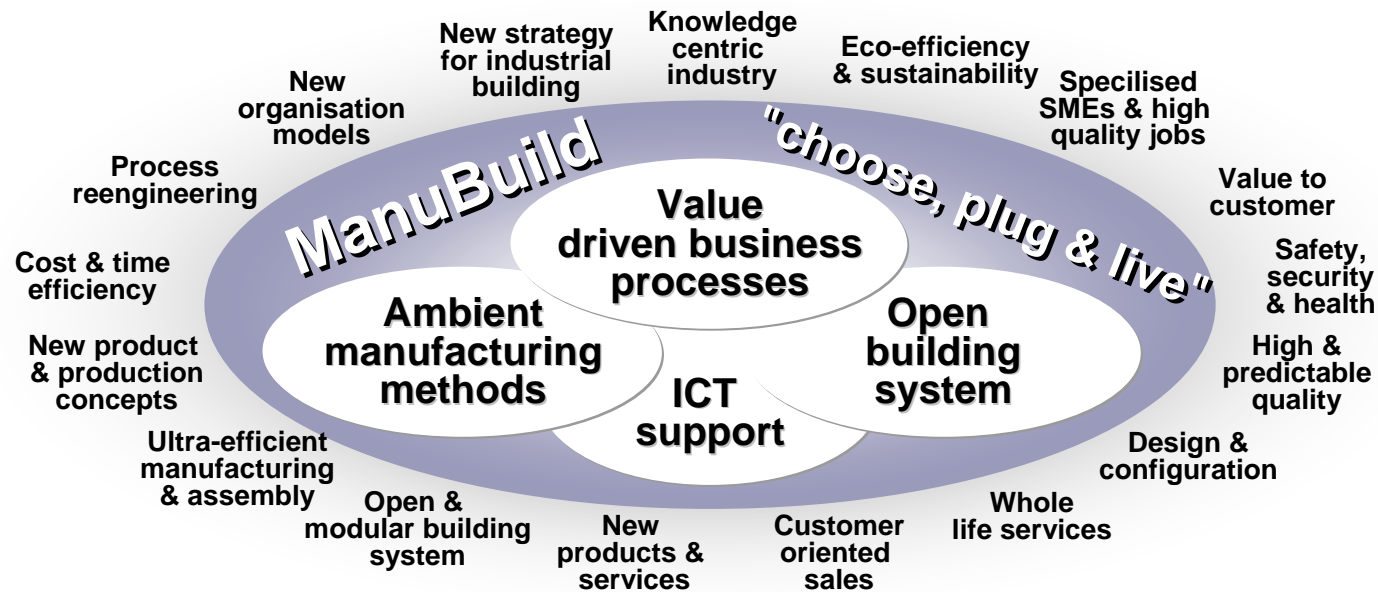
ManuBuild - Vision



The vision of ManuBuild is **open building manufacturing**, a new paradigm for building production and procurement by **combining** highly efficient **manufacturing techniques** in factories and on construction sites **and an open system** for products and components offering diversity of supply and building component configuration opportunities in the open market.

ManuBuild - Objectives

"To develop a **ManuBuild System** that will be used to produce uplifting, sustainable and cost-effective customer-oriented building through radical integration and industrialisation of the design, production and delivery processes as well as greater integration and involvement of the customer; helping them to determine the shape of function of their development."



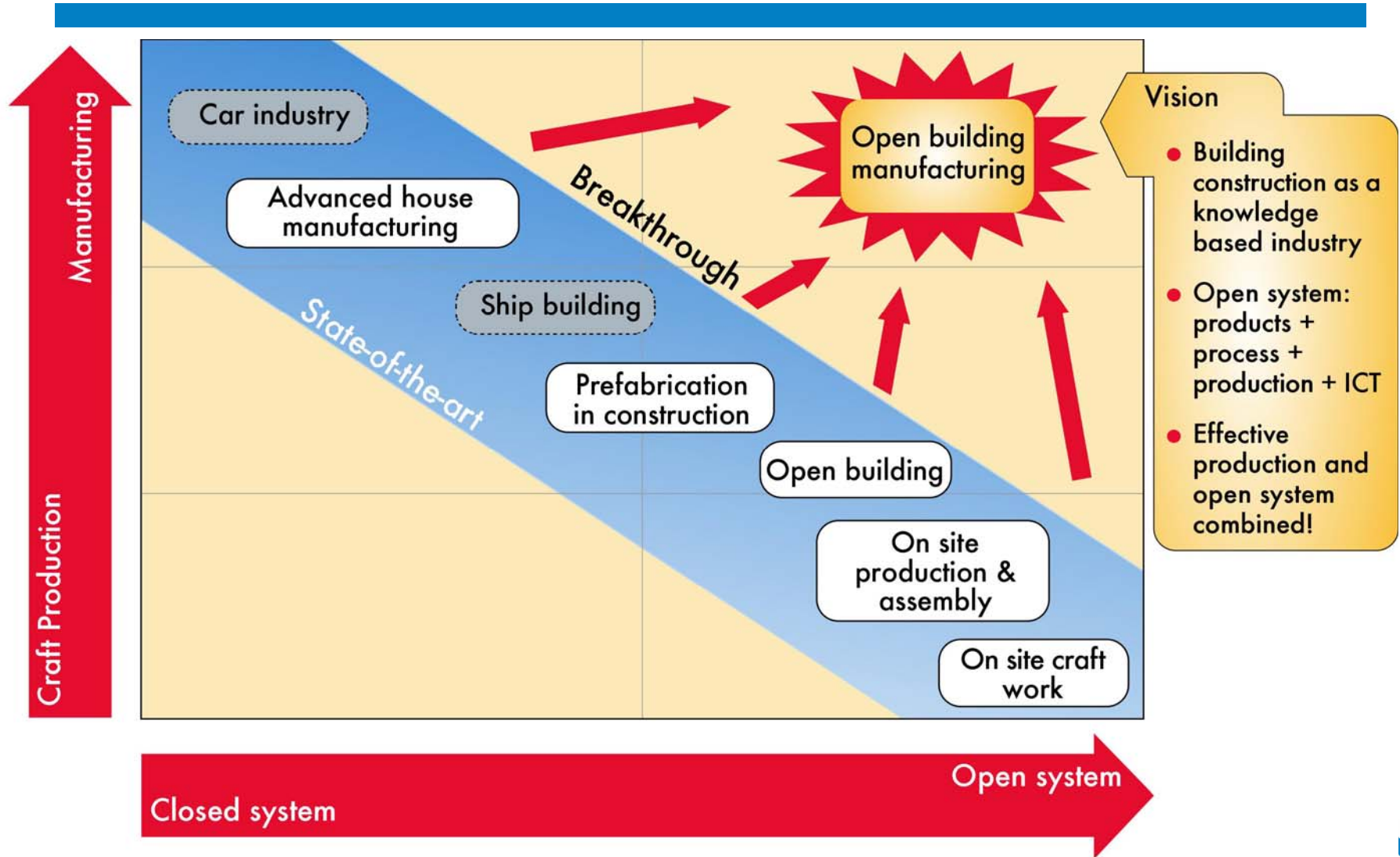
- Construction costs reduced by 50%
- Construction time reduced by 70%
- Work related accidents reduced by 90%
- Affordable customised and flexible buildings
- Architecturally rich & sustainable communities
- Diversity of plug and fix components

ManuBuild - Strategy

The **ManuBuild Open Building Manufacturing System** is *an integrated system that holistically incorporates Building Concepts, Business Processes, Production Technologies and ICT Support* as well as **Training** and thus enables future construction to act as a flexible, agile, value-driven and knowledge based industry and most of all to be highly customer-centric, efficient and competitive.

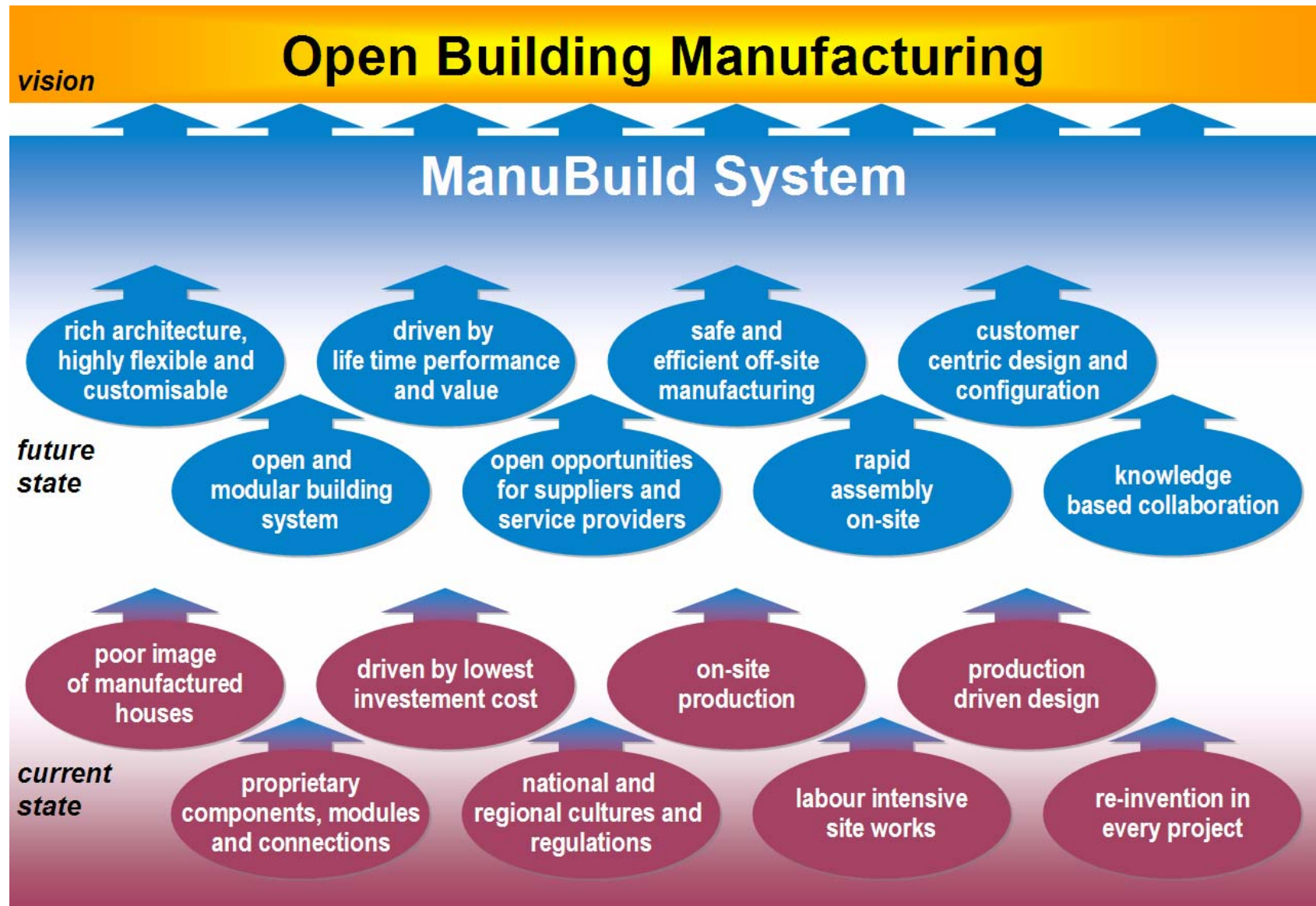


ManuBuild - Open System

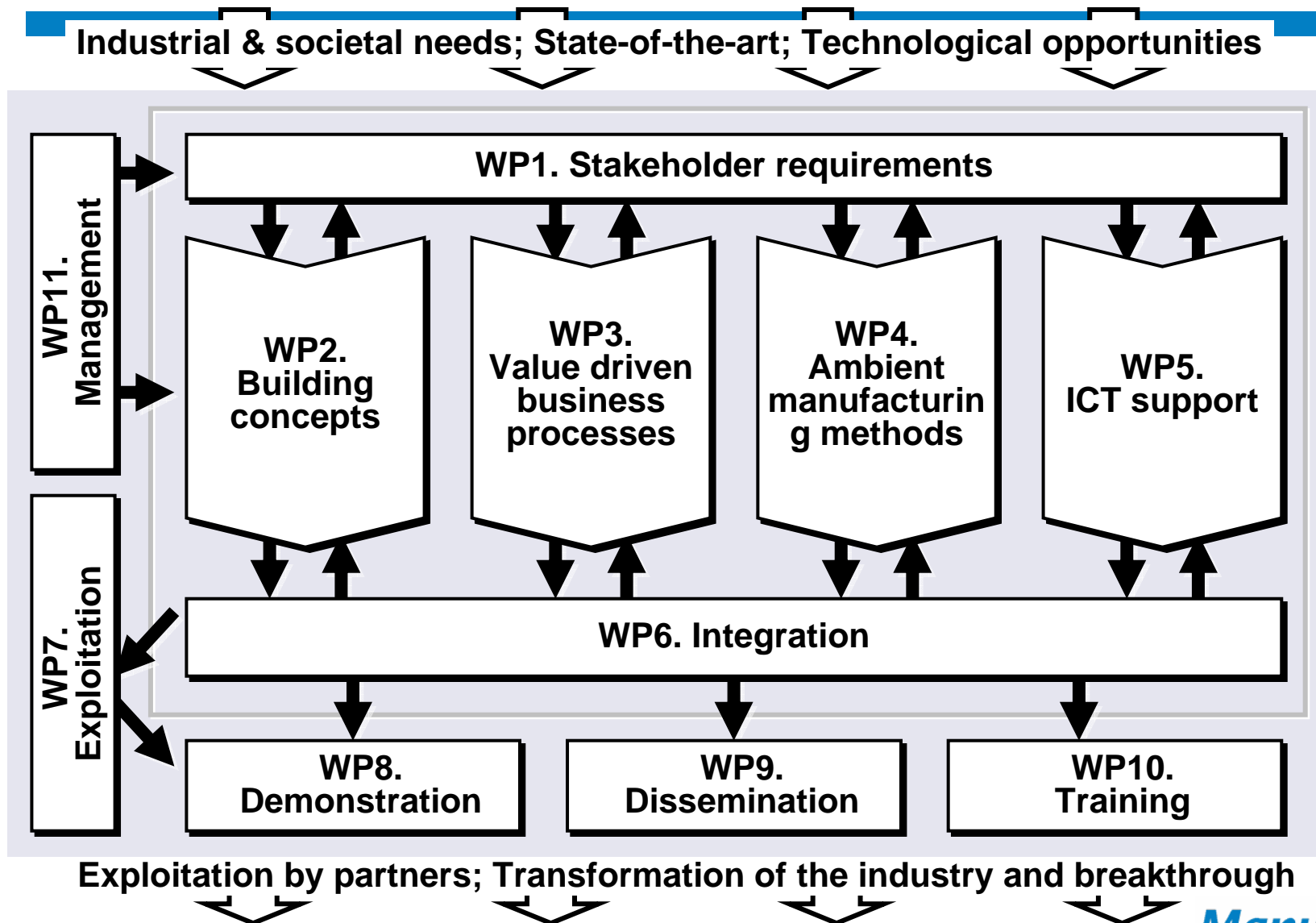


Transition and targets

from Current State to Future State – via ManuBuild System towards Vision

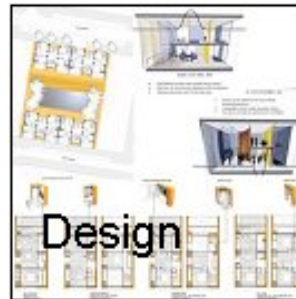


Work Programme Structure



ManuBuild - Approach

Building Concepts



Design

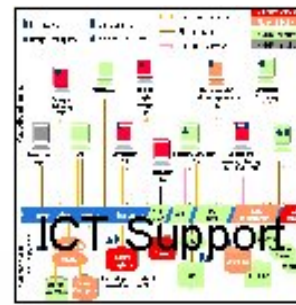


Business Processes

Production Technologies



Production



ICT Support

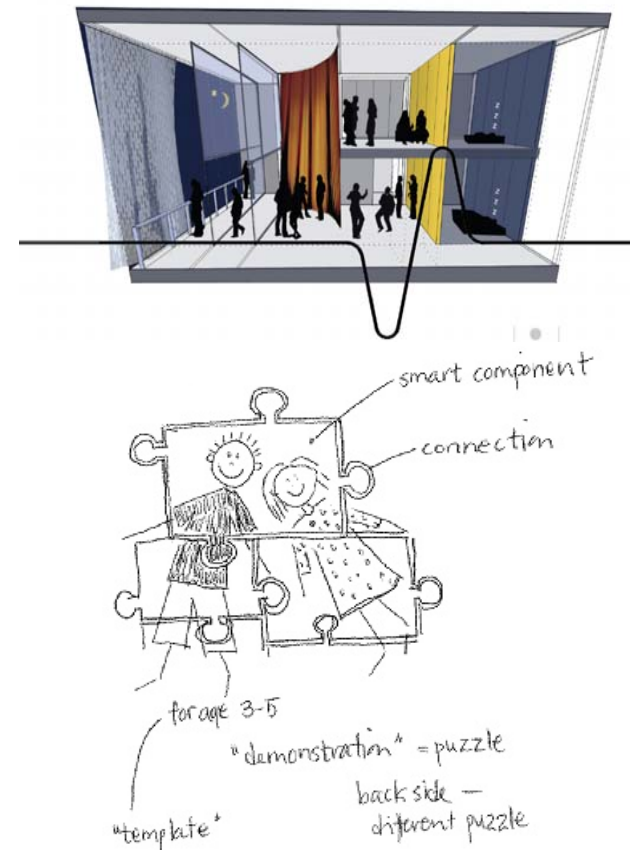


Demonstrations

Design Process Production ICT

Develop and introduce concepts, rules and new products for building design for manufacture employing a system engineering approach,

- ❖ Customer choice and design flexibility through lifecycle
- ❖ Design for living
- ❖ Design for manufacture
- ❖ Openness to multiple sourcing of components
- ❖ Principles and rules of open systems



Design Process Production ICT

Develop and implement a new value driven business process specifically for open building manufacturing and the indicators to measure the efficiency of the process.

- ❖ New and value added process and organisations that integrate the key players
- ❖ Organisational concepts and models to support the integration of the customer
- ❖ New services covering the whole life cycle of buildings from design until demolition and recycling.



Business Processes + Organisational Models + Service Models = MBM

Design Process Production ICT

Integrate and develop technologies and methods new to the construction industry for flexible, value added manufacturing and assembly processes

- ❖ Off-site manufacturing and pre-assembly: highly flexible, scalable, efficient, and automated manufacturing methods and systems
- ❖ Mobile factories: concepts for portable/mobile factories that will bring efficient manufacturing and pre-assembly operations to building sites
- ❖ Logistic solutions: for efficient and lean handling and on-time delivery.



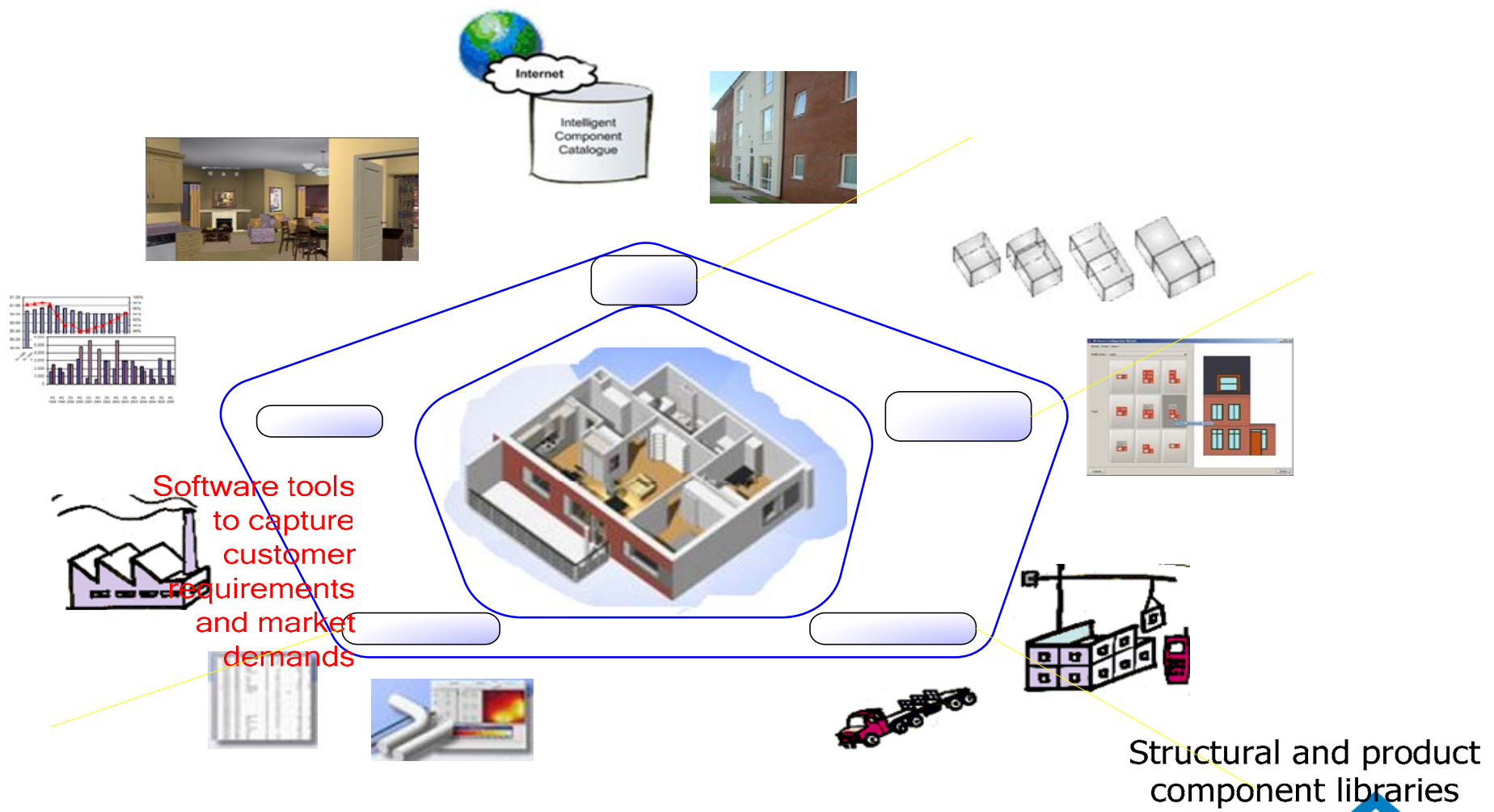
Design Process Production ICT

New integrated ICT infrastructure and key tools to support distributed building manufacturing with seamless information management and delivery.

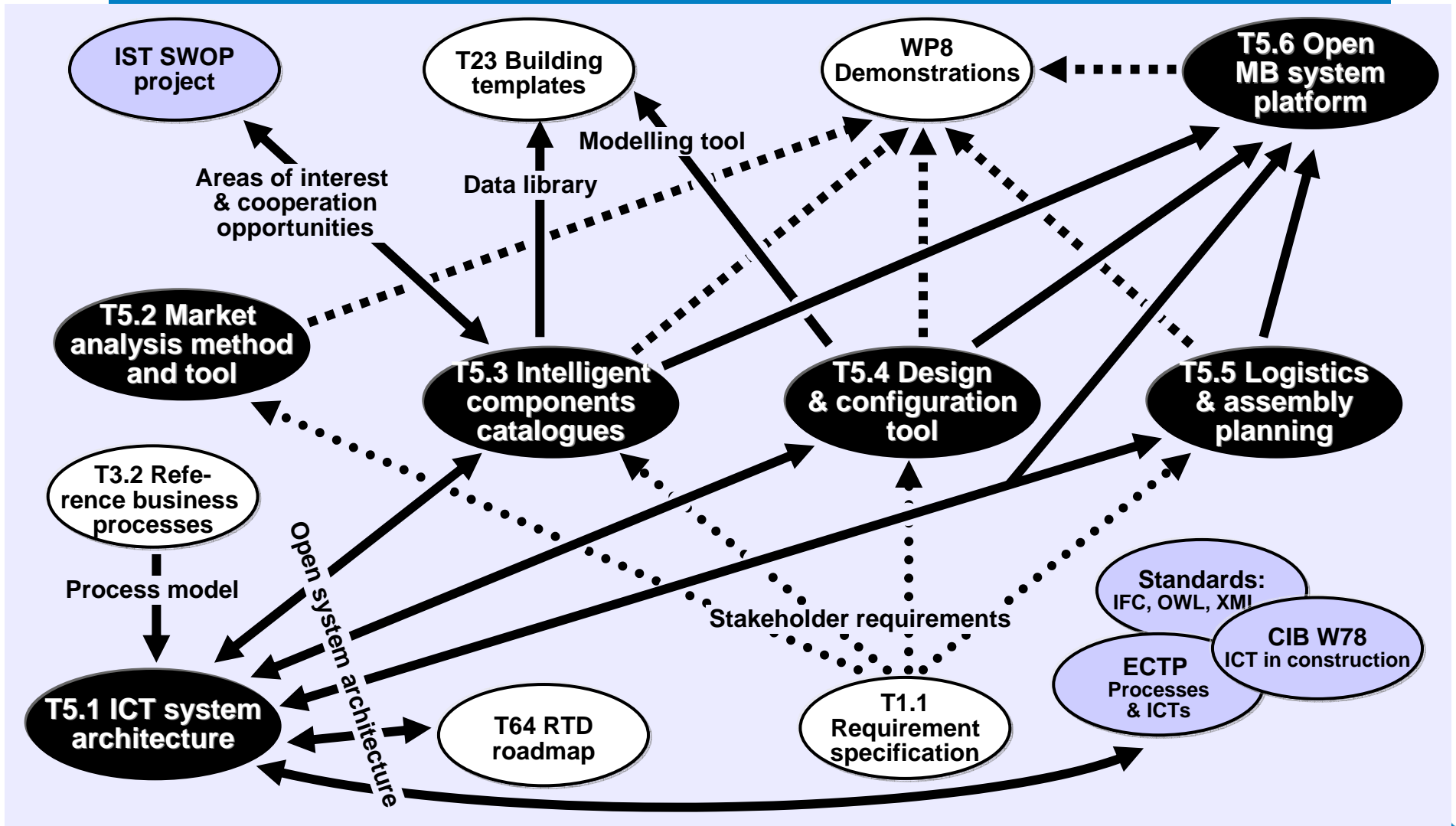
- ❖ A tool that enables the ManuBuild process where the customer, developer and manufacturer are linked.
- ❖ Customer-oriented design and configuration
- ❖ Market analysis and new product development methodology
- ❖ Model-based, site logistics and assembly planning.



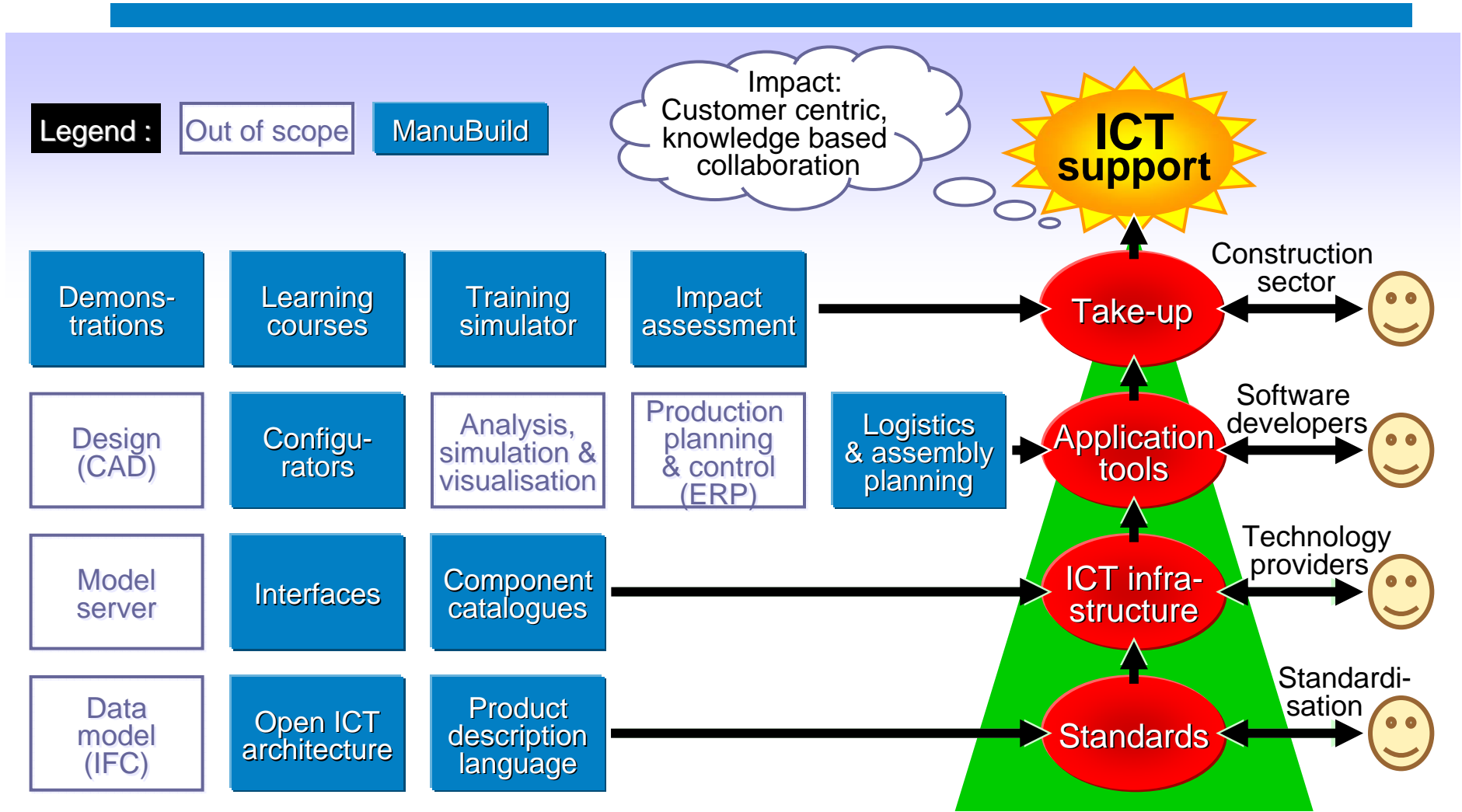
Work Package 5 – ICT Tool



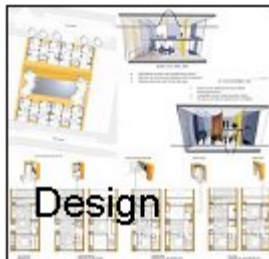
Interdependency Map



ICT Vision & Strategy



Realising the Challenge for Flexible and Open Building Manufacturing



- **Novel open system and European-wide standard for buildings:**

modular, cheaper and faster manufacturing and assembly, future expandable and open for modification,



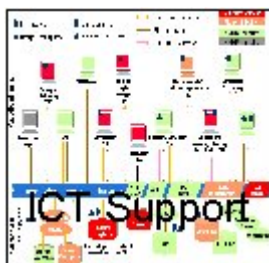
- **New value driven business models and processes:**

focus on customer and community perceived whole life cycle value, and involvement of stakeholders in planning, design/configuration, customisation, delivery and service of individual buildings,



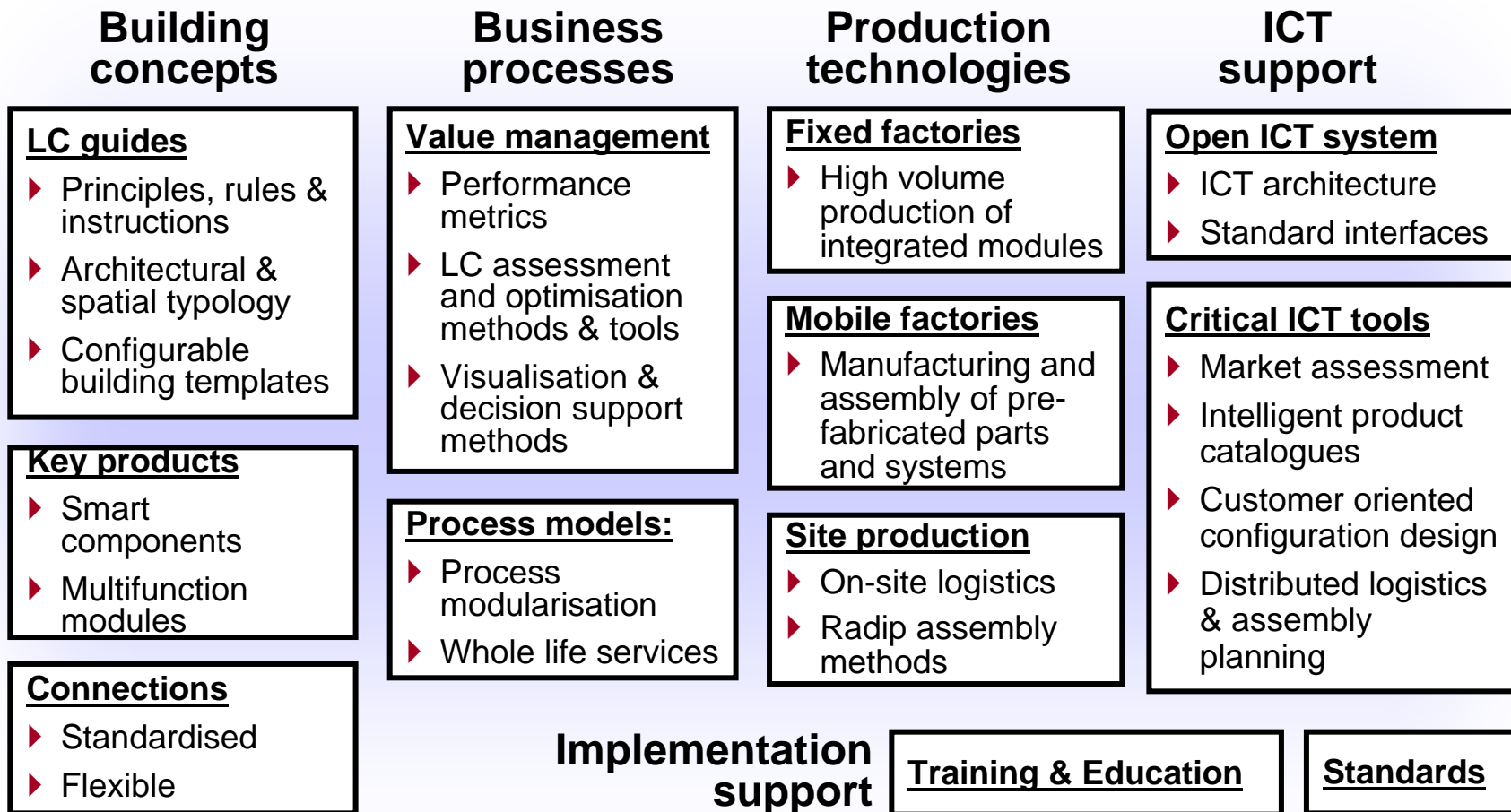
- **New ambient and scalable technologies and methods for manufacturing and assembly:**

efficient, flexible, fast, safe, healthy and environment-friendly,



- **New ICT methods and tools:** full integrated support throughout the whole life-cycle for customer, community, suppliers and manufacturers.

Target system



Demonstrations

Validate results and key scenarios using real and full-scale buildings

- Madrid
- Sweden
- UK



ManuBuild - Summary

ManuBuild is an integrated project on industrialised construction and forms part of European Framework 6 with 10 M€ EC financial support

❖ Vision

- Transformation of building construction into a knowledge based industry.
- Open system: Building + Process + Production + ICT

❖ Focus & approach

- Open building system concepts
- Value driven business processes
- Ambient manufacturing methods
- ICT enablers
- Demonstration in full scale building projects in Spain, UK and Sweden

❖ Duration -

- April 2005 – March 2009

❖ Consortium

- 24 partners from 10 European countries.

❖ Web site

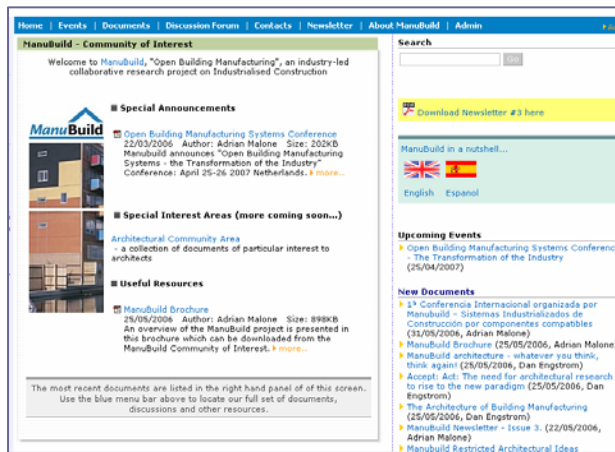
- <http://www.ManuBuild.net>

ManuBuild - Keeping in touch

2nd International Conference

The Transformation of the Industry:
Open Building Manufacturing

April 2009



Community of Interest

<http://www.ManuBuild.net>

